



A5N:1000.XXH

VOLTAGE RATINGS

Part Number	V _{RRM} , V _R – (V) Max. rep. peak reverse voltage		V _{RSM} , V _R – (V) Max. non- rep. peak reverse voltage
	T _J = 0 to 125°C	T _J = -40 to 0°C	
A5N:1000.22H	2200	2200	2300
A5N:1000.24H	2400	2400	2500
A5N:1000.26H	2600	2600	2700
A5N:1000.28H	2800	2800	2900
A5N:1000.30H	3000	3000	3100
A5N:1000.32H	3200	3200	3300

MAXIMUM ALLOWABLE RATINGS

PARAMETER	VALUE	UNITS	NOTES
T _J Junction Temperature	-40 to 125	°C	-
T _{stg} Storage Temperature	-40 to 150	°C	-
I _{T(AV)} Max. Av. current @ Max. T _C	1000	A	180° half sine wave
	74	°C	
I _{T(RMS)} Nom. RMS current	1600	A	-
I _{TSM} Max. Peak non-rep. surge current	14000	A	50 Hz half cycle sine wave Initial T _J = 125°C, rated V _{RRM} applied after surge.
	15000		60 Hz half cycle sine wave
I ² t Max. I ² t capability	937000	A ² s	t = 10ms Initial T _J = 125°C, rated V _{RRM} applied after surge.
	973000		t = 8.3 ms
I ² t ^{1/2} Max. I ² t ^{1/2} capability	46700	kA ² s ^{1/2}	Initial T _J = 125°C, no voltage applied after surge. I ² t for time t _x = I ² t ^{1/2} * t _x ^{1/2} . (0.1 < t _x < 10ms).
di/dt Max. Non-repetitive rate-of- rise current	300	A/μs	T _J = 125°C, V _D = V _{DRM} , I _{TM} = 3000A. Gate pulse: 20V, 20Ω, aproximately 40% of non-repetitive value.
P _{GM} Max. Peak gate power	200	W	tp = 40 μs
P _{G(AV)} Max. Av. gate power	5	W	-
+I _{GM} Max. Peak gate current	10	A	-
-V _{GM} Max. Peak negative gate voltage	5	V	-
F Mounting Force	24500(5500) +- 10%	N(Lbf)	-



A5N:1000.XXH

CHARACTERISTICS

PARAMETER	MIN.	TYP.	MAX.	UNITS	TEST CONDITIONS
V _{TM} peak on-state voltage	---	---	2.26	V	Initial T _J = 25°C, 50-60Hz half sine, I _{peak} = 3000A.
V _{F(TO)1} Low-level threshold	---	---	1.31	V	T _J = 125°C Av. power = V _{T(TO)} * I _{T(AV)} + r _T * [I _{T(RMS)}] ² , 180 Half Sine.
V _{F(TO)2} High-level threshold	---	---	1.55		
r _{T1} Low-level resistance	---	---	0.48	mΩ	Use low values for I _{TM} < π rated I _{T(AV)}
r _{T2} High-level resistance	---	---	0.38		
I _L Latching current	---	---	800	mA	T _C = 125°C, 12V anode. Gate pulse: 10V, 20Ω, 100μs.
I _H Holding current	---	---	400	mA	T _C = 25°C, 12V anode. Initial IT = 15A.
t _d Delay time	---	0.7	1.5	μs	T _C = 25°C, V _D = rated V _{DRM} , 50A resistive load. Gate pulse: 10V, 20Ω, 20μs, 0.1μs rise time.
t _q Turn-off time	---	125	250	μs	T _J = 125°C, I _{TM} = 1000A, di/dt = 25A/μs, V _R = -50V. dv/dt = 20 V/μs lin. To 80% rated V _{DRM} . Gate: 0V, 100Ω.
t _{q(diode)} Turn-off time with feedback diode	---	---	50	μs	T _J = 125°C, I _{TM} = 1000A, di/dt = 25A/μs, V _R = 1V. dv/dt = 600 V/μs lin. To 40% rated V _{DRM} . Gate: 0V, 100Ω.
I _{RM(REC)} Recovery current	---	93	---	A	T _J = 125°C, I _{TM} = 1000A, diR/dt = 25A/μs.
Q _{RR} Recovered charge	---	166	---	μC	
dv/dt Critical rate-of-rise of off-state voltage	300	---	1000	V/μs	T _J = 125°C. Exp. to 100% or lin. Higher dv/dt values available.
	---	---	300		T _J = 125°C, Exp. To 67% V _{DRM} , gate open.
I _{RM} , I _{DM} Peak reverse and off-state current	---	15	75	mA	T _J = 125°C, Rated V _{RRM} and V _{DRM} , gate open.
I _{GT} DC gate current to trigger	---	40	300	mA	T _C = -40°C T _C = 25°C +6V anode-to-cathode. For recommended gate drive see "Gate Characteristics" figure.
	---	20	150		
V _{GT} DC gate voltage to trigger	0.3	---	5	V	T _C = -40°C T _C = 25°C
	0.3	---	3		
V _{GD} DC gate voltage not to trigger	---	---	0.200	V	T _C = 25°C, Max. Value which will not trigger with rated V _{DRM} anode-to-cathode.
R _{thJC} Thermal resistance, junction-to-case	---	---	0.025	°C/W	DC operation, double side cooled.
	---	---	0.025	°C/W	180° sine wave, double side cooled.
	---	---	0.027	°C/W	120° rectangular wave, double side cooled.
R _{thCS} Thermal resistance, case-to-sink	---	---	0.010	°C/W	Mtg. Surface smooth, flat and greased. Single side cooled. For double side, divide by 2.
wt Weight	---	460(16.0)	---	g(oz.)	---
Case Style	---	TO-200AD		JEDEC	---



A5N:1000.XXH

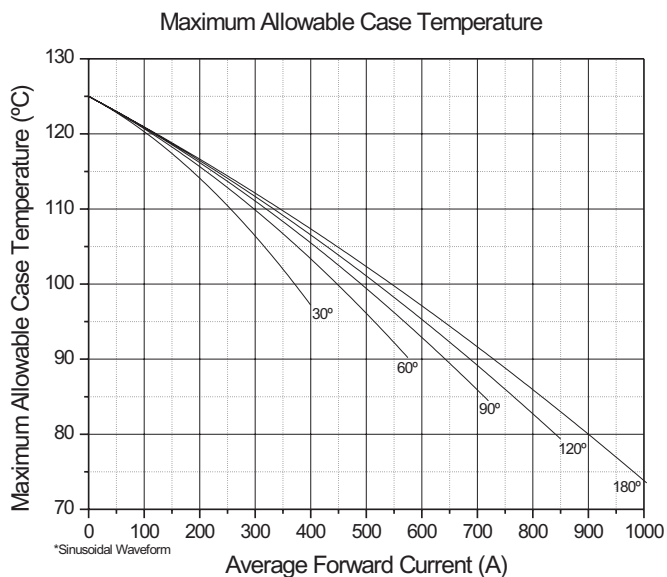


Fig. 1 - Current Ratings Characteristics

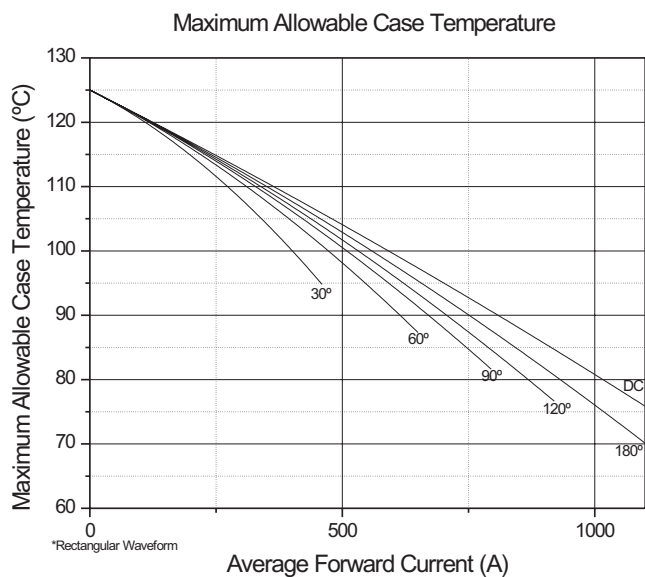


Fig. 2 - Current Ratings Characteristics

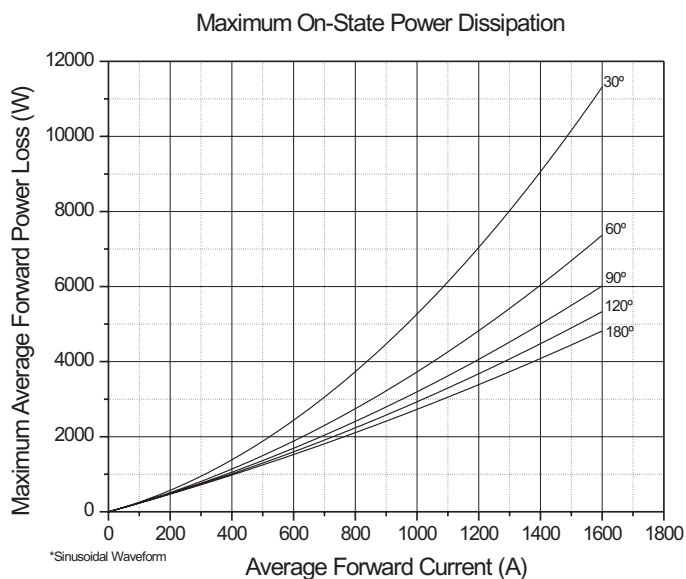


Fig. 3 - On-state Power Loss Characteristics

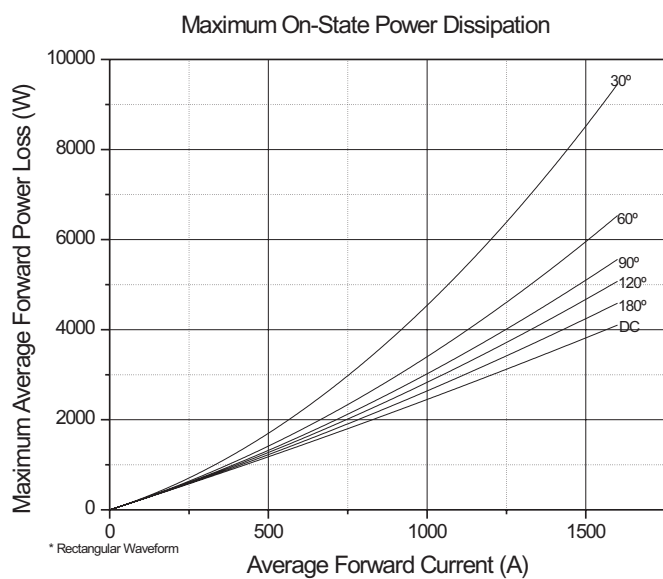


Fig. 4 - On-state Power Loss Characteristics



A5N:1000.XXH

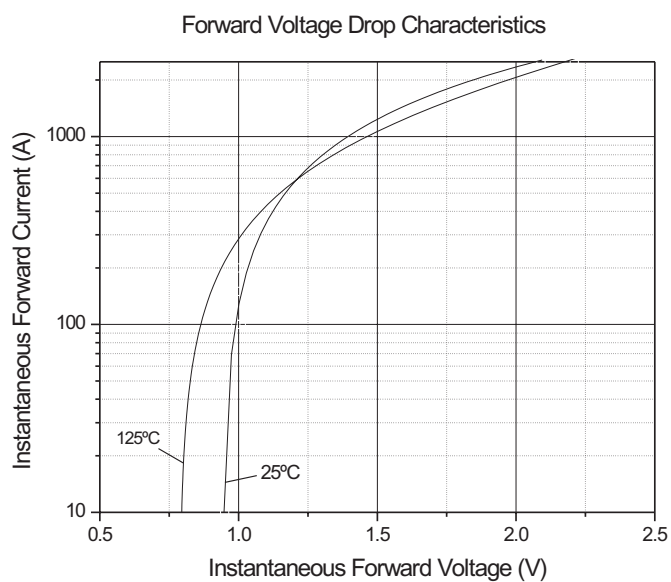


Fig. 5 - Forward Voltage Drop Characteristics

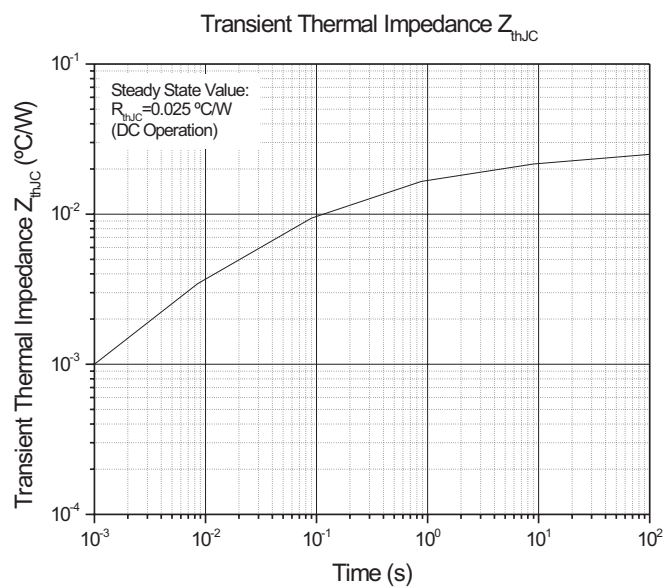


Fig. 6 - Transient Thermal Impedance Z_{thJC} Characteristics

TO-200AD

